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AZERBAYCAN'IN TARIM SİSTEMİNİN EKONOMİK DEĞERLENDİRMESİNİN BAZI KONULARI

Özet

Azerbaycan Cumhuriyeti bağımsızlığını kazandıktan sonra tarım sektöründe reformlar gerçekleştirmek ihtiyacı hissetti. Tarım sektörde yapılan reformlardan sonra tarım arazilerinin kullanılmasında oluşan sorunlar günümüzde önemli boyut almşıtır. Hükümet tarafından uygulanan ilgili eylem planları tarım sektörde belirtilen sorunların çözümünde bazı ilerlemeler kaydedilmiş, ama genel olarak sorunlar bilimsel bakış açısından uzak çözümsüz kalmıştır. Bunu göz önünde bulundurarak, biz bu makalede tarımda en önemli sorunlardan biri olan ekonomik açıdan yeni ürün yetiştiriciliğinin sistemini değerlendirdik. Makalede bağımsızlık kazandıktan sonra yeni bir ekonomik sistem Azerbaycan'da tarım sisteminin oluşumu ve etkileyen faktörler uygulama düzeyinde ele alınmıştır. Ayrıca tarım sisteminin tanıtım sonuçları, çiftliklerin somut örneğinde değerlendirildi ve teknolojinin geliştirilmesinin tarım sistemene ektileri kayd edildi.

Anahtar kelimeler: tarım sistemi, çiftlikler, ana faktör, yoğunlaşması, yoğun teknoloji

SOME ISSUES OF ECONOMIC ASSESSMENT OF AGRICULTURAL SYSTEM IN AZERBAIJAN

Abstract

After gaining independence, there was a need to carry out reforms in agricultural sector of Azerbaijan. The first years after the undertaken reforms use of agricultural lands has become one of actual problems of the day. Though there

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was made certain progress in agrarian sector thanks to relevant actions implemented by the government, but in general the problems in solution of abovementioned issues remained unsolved from scientific viewpoint. Taking this into consideration, we will try to assess formation of new crop husbandry system from economical viewpoint as one of the most important problems in agriculture. The paper discusses the formation of agricultural system in Azerbaijan in new economic system after gaining independance, and implementation level of factors affecting it. Moreover, the results of introduction of agricultural system is evaluated in concrete example of farms and affect of intensive technology to development of agricultural system is justified.

Key words: agricultural system,farms, main factors, intensification, intensive technology

It has already been proven by historical sources that Azerbaijan is an ancient country with rich farming culture. Crop husbandry is one of areas, which is of specific importance in growth history of our country. Based on experience of many years scientists concluded that creation of contemporary agricultural system is very important to get high yield by using less labor, and this system should be improved depending on social-political and economic situation of the country.

A.V. Sovetov who is considered one of famous scientists in the field of agriculture has noted in his book titled "About agricultural system" issued at the end of XIX century that "... any agricultural system emerges depending on certain economical condition and changes...".

Agricultural system means- implementation of complex organisational-agricultural, agrotechnical and meliorative actions securing high yield per unit, low production costs in specific natural and economic environment. It aslo means continuous increase of soil fertility through rational utlilization of all soil categories.(1).

The most important part of each agricultural system includes organization of farm where agricultural sites and ratio of crop area of diverse agricultural crops should be identified properly. It depends on management of farm in general.

In Soviet era, when all farms (kolkhozes and sovkhozes) were functioning based on planned economy all agricultural lands belonging to them never remained unused as their activities were under control.

After gaining independence, there was a need to carry out reforms in agricultural sector as in all areas in connection with the changes occured in economical system of the country. The first years after the undertaken reforms both formation of new agricultural system and level of land utilization, particularly use of agricultural lands has become one of actual problems of the day. Though there were made certain progress in agrarian sector thanks to relevant actions implemented by the government, but in general the problems in solution of abovementioned issues remained unsolved from scientific viewpoint.

Unfortunately from economical point of view these problems are paid insignificant attention and one can't find any serious scientific analysis on these issues. Taking this into consideration, we will try to assess formation of new crop husbandry system from economical viewpoint as one of the most important problems in agriculture.

In general, all actions implemented in in crop husbandry system assume great importance, but one of them or the other is considered the principal one depending on local natural and economic condition.

As a result of studies carried out in agrarian sector it was found out that following main factors constitute formation of crop husbandry system in farms: introduction of crop rotation, soil tillage, use of fertilizers and seeds, ameliorative measures and plant protection (2).

It is possible to define the implementation level of these factors even though approximately that secure formation of crop husbandry system at each region or within the farm. The table below presents the results of the studies carried out by us in farms located in Plain Garabagh region.

Table 1.Utilization level of factors forming agricultural system in farms

s/s	***Main factors forming agricultural system***	***Level of utilization, %***
1.	*Introduction of crop rotation system*	*20,0*
	including: cropped rotation	*10,0*
	Grass-crop rotation	*25,0*
	Soil conservation	*5,0*
2.	*Soil tillage*	*75,0*
3.	*Fertilization*	*50,0*
	including: organic fertilizers	*45,0*
	Nitrogen	*65,0*
	Phosphorus	*55,0*
	Potassium	*40,0*
	Gypsum application	*0,0*
4.	*Seed growing*	*60,0*
5.	*Agro-ameliorative measures*	*10,0*
6.	*Plant Protection*	*65,0*

Note: The table was designed based on average indicators calculated based on data obtained from nearly 50 farms

As table shows, introduction of crop rotation by farms located in Plain Garabagh region makes up 20%, use of fertilizers-50% and agro-ameliorative measures-10%. The situtation related to othe factors is not heartwarming. With some exceptions, results of the studies carried out by us in some specific farms did not differ sharply from average indicaters obtained for the whole region.

It requires to calculate relevant coefficients to make proper and easy assessment of formation of agricultural system for any region or specific farm. Following formula may be used for this purpose:

$$Tc = \frac{Fc}{n}$$

where: **TC –** stands for total cofficent reflecting formation of agricultural system in farms, **FC –** coefficient on factors formating agricultural system,

n – number of factors.

Level of formation of agricultural system for Plain Garabagh region has been calculated by using this formula and indicatoes presented in the above table, and it was found out that level of formation of agricultural system for Plain Garabagh region is makes up 0.47 i.e equal to 47%.

One of the most important factors to form agricultural system includes the issue related to use of lands, because implementation and introduction of all other factors forming agricultural system is closely conneted with land. Taking this into consideration, the state of land utilization in some farms was explored by us in target area and the result is not satisfactory at all. Farmer holdings “Gabil”, “Vugar” in Yevlakh district, “Etibar”, Elkhan” in Goranboy district, “Ikram”, “Salman” and “Elgiz” in Barda districts own huge lands (land area owned by them ranges between 120-500 ha). But around 20-25% of their lands suitable for agriculture remains uncropped due to water and financial scarcity. But shortcomings in implementation of factors ensuring formation of agricultural system don’t allow head of households to get expected yiled from cropped fields, though they make as much efforts as they can. This is proven by information on produced yield for the last 3 years obtained from abovementioned holdings ***(Table 2)***.

Table 2. Assessment of agricultural systems for crops

#S	Crops	Actual croped area, ha	Average yield		
			Expected, c/ha	Actual	in %
1	Grain crops and grain legumes	530	45	32	71
2	Cotton	96	20	13	65
3	Vegetables	180	200	156	78
4	Melon crops	85	180	145	80
5	Potato	126	220	160	73
6	Forage crops	743	180	130	72
Total		1760	-	-	-

Based on this data we can evaluate result of agricultural system implemented for these holdings. Following formula may be used for this purpose:

$$Vas = \frac{AxP}{Ta}$$

where: **Vas**–stands for average value of agricultural system implemented, **A-** area of crops -ha, **P**-productivity -%, **Ta** –total area of crops, ha.

Through calculation it was found out that result of agricultural system implemented in these farms is equal to 72.4%. By this way the state of introduction of agricultural system could be evaluated for specific holding.

It should be noted that, obtained indicators allow to evaluate not only state of agricultural system in any region or holding but also all farming activitis of the holding and utilisation level of land resources.

Analysis of the studies shows that when evaluating general situation of agricultural activities in any area or specific hilding the use of every year data or 3-year data may yield correct result. For this purpose first of all indicators reflecting expected yield and actual yield for the same year should be used.

Basic principle of contemporary agricultural system includes intensification of agriculture. Establishment of scientific grounded and intensive developing agricultural system first of all requires properly identification of structure of crop area, utlisation of high yielding crop species, introduction of soil conservation technologies and energy saving technologies in soil tillage. It is also needed to keep order of application rate of plant protection means against diseases pests taking into account nature conservation issues.

Rational utizilation of modern agricultural machinery, improvement of ameliorative state of lands, wide-scale appplication of advance global experience as well as introduction of achievements obtained through scientific-technical progress and intensive technologies are of extreme importance.

Intensive technology includes creation of all favorable condition, which ensures normal growth of plant that leads to high and quality yield from agricultural crops.

Intensive technology considers the followings:

-cultivation of high productive crop varieties adapted to local condition and performing complex immunity against unfavorable condition;

- intorduction of crop rotation in agricultural system;
- use of high reproductive sowing materilas;
- application of soil conservation technologies securing maximum humid accumulation and long-term storage in soil;
- ensure availability of required minerals and organic substances at each peace of crop area giving consideration to agrochemical peculiarities of target soil;
- application of nitrogen based on soil and plant diagnosis as well as in line with plant growth stage and demand;
- ensuring reliabale protection of plants from weeds, diseases and pests through wide use of long-term and shor-term prognosis as well as early warning system;
- utilization of contemporary complex machinery and tools;
- efficent labour organization and compensation in line with progressive methods of market economy;
- Imtroduction of all technological operations timely and qualitatively through proper control over costs;
- Regulation of plant height and growth to protect them from unexpected threats;
- Reliable protection of soils and environment.

Formation of intensive agricultural system may be achieved through serious control over the use and introduction of abovementioned factors appropriately. As an example it coud be shown over the individual plant.

Main indicators to assess profitability of cereal production based on intensive technology include followings:

- Per hectare productivity (cen/ha);
- Grain quality- is defined based on quality increase of produce based on actual sale price of 1 metric centner grain and grain unit, manat;
- Labour expenditure- person/hour for 1 ha and person/hour for metric centner;
- Value of gross yield per ha and value of increase, manat;
- Increase of labour productivity, %;
- Production cost for 1 ha or 1 metric centner produce (production cost and structure of costs for main elements), manat;
- Additional cost for increased yield and its compensation, manat;
- Net revenue from 1 ha or 1 metric centner, manat;
- profitability, %;
- annual economic efficiency from 1 ha, manat.

Depending on the objective the indicators like level of additiopnal expenditure for agricultural machinery and tools and time for return of costs, expenditures of fertilizers and plant protection measures, reduction of labour productivity etc to charactarize economic effciency perfectly for any specific issue may be used. Resources used for production of 1 ton grain is also of great importance. Based on comparison of different options germination of plant per unit area, energy consuption, use of seed and mineral fertilizers and other factors coud be accepted not only to identify technological scheme for economic use of resources but also to define optimal rate on demand for resources.

It should be noted that use of application of heavy-dose fertilizers together with other chemicals not only increases productivity of crops but also have positive impact on crops cultivated next years. From this viewpoint when assessing efficiency of intensive cropping technology yield increase obtained next years from the same area used previously for introduction of intensive cropping technology should also be taken into consideration.

Calculation of productivity bases on quanity of nutrients in soil and indicators obtained from experimental stations, but economic assessment of new technology is determined based on with baseline indicator and that of obtained as a result of application of it.

Results of technology applied previously are taken as baseline indicators. In case intensive technology is applied not in the whole area but in part of it, data on the whole area is taken as baseline information. But if crops are cultivated under intensive technology in all areas belonging to the farm, in this case it is recommended to use data of previous 1-2 years with same climate condition or that of the last 3-5 years.

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